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QUAIOLOGY.

— BY H. W. KERR.



The DOMESTICATION
of the WILD QUAIL.



(2a)

"CALIFORNIA'S GAMIEST BIRD"
California Valley Partridge.

Photo by Walter R. Welch.

QUAILOLOGY.

**The Domestication, Propagation,
Care & Treatment of Wild
Quail in Confinement.**

TOGETHER WITH

**Natural History Notes, Letters from Breeders
& A Digest of Game Laws.**

WRITTEN & COMPILED BY

HARRY WALLAS KERR

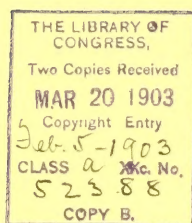
CORRESPONDING SECRETARY
NATIONAL QUAIL BREEDERS ASSOCIATION.

With Illustrations.

LITTLE SIOUX, IOWA, U. S. A.
PUBLISHED BY THE TAXIDERM COMPANY

1903

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The dew of dawn upon its crest,
It wakes with morning from its rest
Amid the waving, sparkling grass,
That drips with diamonds where I pass;
And with its downy throbbing breast
Upon the gentle breeze caressed,
It fades at distance from my sight,
But lingers yet its sweet, "BOB WHITE."

—Basil B. Bassett



INTRODUCTION.



In presenting this, the first edition of "QUAIILOLOGY," I trust it may meet the long felt want for practical information regarding the quail family and how they may be taken from a wild state, domesticated, and successfully reared and cared for, in confinement.

While I love to see these graceful birds in the full and free enjoyment of their liberty, I cannot but feel that those who denounce their keeping in confinement, look only at one side of the question, and take no account of the miseries and struggles for existence they encounter against winter and rough weather, the vermin and the shot-gun swine. I, however, would cry out against those who try to keep them and take no interest or trouble in making them happy and free from misery. Much misery is caused every day and many birds are lost from the lack of "know how" care, and an improper conception of their natural peculiarities, food and habits. Some who cannot, would if they "only knew how," make their birds happy. It is the purpose of this volume to, as clearly as possible, give the needful instruction to these and any who may wish to take up the culture of these game birds from a fanciers' standpoint.

The culture of the quail is not entirely a new one, but it has not yet attained that public attention which is bound to arise when it becomes known what a pleasure and profit can be derived from it under proper management.

The few who are in the business, or culture, as we prefer to call it, it may suffice to say will not desert it, as it is much more pleasant and far less disagreeable than other ventures of a similar nature.

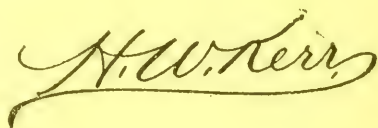
The quail is easily raised, costs very little to feed, is the healthiest, hardiest, cleanliest, and most prolific bird of the poultry yard, free from contagious diseases and brings a good price on any market.

Once started, the fascination, pleasure and profit in no way relaxes to induce the abandonment of the culture.

There is much in the future for the culture. Not only in its advancement, but the improvement of the Bob-White, not only in markings but in the production of larger and more prolific new species.

That crosses can be made and new varieties produced is yet a matter of doubt with many. It has not been sufficiently experimented upon but to receive limited attention in this volume. Our experience, obtained from rearing these beautiful birds in the past ten years is related here, as well as notes from various breeders throughout the United States, to whom we give due credit. Also to the various Ornithological Reports and Works, on their description, range, nesting and feeding habits and peculiarities in a wild state, and to Dr. Shufeldt and others for photographs and drawings of live birds.

It is not to be deemed a foolish fad, but a profitable, pleasant culture, the outcome of a desire to save from extermination and replace in a domesticated state, and improve, one of the noblest families of game birds.

A handwritten signature in dark ink, reading "H. W. Kerr". The signature is written in a cursive style with a long, sweeping underline that extends to the left and then curves back under the name.

QUAILOLOGY.

Part I. ORNITHOLOGY.

ORDER GALLINÆ. GALLINACEOUS BIRDS.

Granivorous and possessing strong claws for scratching. They include most of our domestic birds.

SUBORDER PHASIANI. PHEASANTS, GROUSE, PARTRIDGES, ETC.

FAMILY TETRAONIDÆ. GROUSE, PARTRIDGES, ETC.

Game birds; flocks; generally polygamus; feed on insects, seeds, etc; do little injury; of vast economic importance.

SUBFAMILY PERDICINÆ. PARTRIDGES.

GENUS COLINUS LESS.

BOB WHITE

Colinus virginianus (LINN.)

Geog. Dist. —Eastern United States; west to Dakota, Kansas, Indian Territory and Eastern Texas. North to Southern Maine and Southern Canada, south to the Atlantic and Gulf States. (*)

SP. CHAR. "Forehead, and line through the eye and along the side of the neck, with chin and throat, white. A band of black across the vertex, and extending backwards on the sides, within the white, and another from the maxilla beneath the eye, and crossing on the lower part of the throat; the under parts are white, tinged with brown anteriorly; each feather with several narrow, obtuse, V-shaped bands of black; the fore part of back, the side of the breast, and in front just below the black collar, of a dull pinkish red; the sides of body and wing coverts brownish red; the latter almost uniform, without indication of mottling; scapulars and upper tertials coarsely blotched with black, and edged internally with brownish yellow; top of head reddish; the lower part of neck, except anteriorly, streaked with white and black; primary quills unspotted brown; tail ash. FEMALE: With the white markings of the head replaced by brownish yellow; the black ones with brownish. YOUNG: Head ashy, with a

* Goss' Birds of Kansas.

narrow postocular white stripe, and the crown spotted with black; throat whitish; beneath pale dingy ashy; with whitish shaft streaks, and without black bars or other markings; above reddish or olivaceous drab, the feathers with whitish shaft streaks, and a large black spot, mostly on upper web. CHICK: Head dingy buff; an auricular dusky elongated spot, and a vertical patch of chestnut rufous, widening on the occiput."

	Length	Stretch of wing	Wing	Tail	Tarsus	Bill
Male.....	10.00	15.00	4.45	2.70	1.25	.55
Female...	9.50	14.70	4.35	2.65	1.25	.50

Iris brown; bill dark brown, usually pale brown at base of under mandible; legs and feet pale bluish to brownish gray; claws black. (*)

In this variety albinos are frequently reported; ranging from a dusky to almost pure white.

NESTS AND EGGS

The favorite nesting places of this bird are on the ground along a fence row, at the foot of stumps surrounded by a thick growth of vegetation, and not infrequently do they select a site in a bunch of tall grass, or weeds, in the garden, or a cultivated field. Where there are rail fences the intersecting, invariably grassy nooks form a favorite nesting site. In the south "cotton rows." The second setting is often placed at the base, or in the top of a shock of small grain where their nest is often broken up by threshing before the setting is hatched. The nest is a very neat affair and is frequently arched over with grass forming a tunnel completely hiding it from view. In the meadow lands as well as grain fields many nests and eggs are annually destroyed during the haying and harvest season.

Davie, in his Nests and Eggs of North American Birds, says: "Sometimes three broods are reared in a season," this however we cannot confirm, but invariably two broods are reared. The first nesting in May and the second the last of July or in August. An exceedingly late nesting is reported by I. S. Trostler, Omaha, Nebr., ten fresh eggs being found in Pottawattamie County, Ia., on September 12th, 1897. The nest was situated in an old unused potato field, under a vine grown bush.

The number of eggs in a setting varies from twelve to twenty-five, and we know of one occasion of thirty-seven being found in a single nest, which we cannot but say must have been the complement of two females, while at the same time there was but one to be seen thereabout. The eggs are pure white, unless

* Goss' Birds of Kansas.

they have become stained from the grass upon which they are laid. One end is quite pointed and the other obtusely rounded; average size 1.20 x .95.

HABITS

This species is familiar to all, being known in the New England, Middle and Western States as the Quail, and in the Southern States as the Partridge or Virginia Partridge. It is unquestionably the most prolific of all our game birds. Its present name "Bob White," its cheerful note call, has at the suggestion of Professor Baird, become its present and accepted name.

The birds thrive the best in the presence of man, where, if unmolested and protected against "game hogs," they become quite tame. In the colder sections many perish every winter for want of food and shelter. Where they are protected and fed they become very tame, and in many instances where they are protected, feed with the barnyard flock at the doorstep.

Under the care and kind treatment of the true naturalist and fanciers why should they not become entirely domesticated, when their friendly relations are openly shown by them when they become so tame as to feed with the barnyard fowls at the doorstep? The destruction of them from various causes has brought about the solution of this question.

Cultivated fields afford a safe retreat from their many enemies and insure a plentiful supply of food. They feed largely upon weed seeds, cut worms, army worms, twelve spotted cucumber beetles, chinch bugs, locusts, and many other injurious insects, and more than doubly repay the farmer for the few grains eaten before the harvest. The young at first feed exclusively on insect food and later on small seeds, grain and bugs. Aside from insects their food consists of buckwheat, wheat, rye, oats, seeds of the locust, wild peas, tick-tree-foil, sunflower, bitterweed, partridge berries, wintergreen, nannyberries, wild grapes, etc. In the late fall they often feed on seeds of skunk-cabbage, acorns and beach-nuts.

Goss in his *Birds of Kansas*, says: "Although not strictly true to each other in their marriage relations, are very attentive and share alike in protecting and rearing the young."

During the nesting season the female is seldom seen while the male, who is very attentive, attracts attention with his loud and fallacious call, usually uttered from a fence post or lofty position.

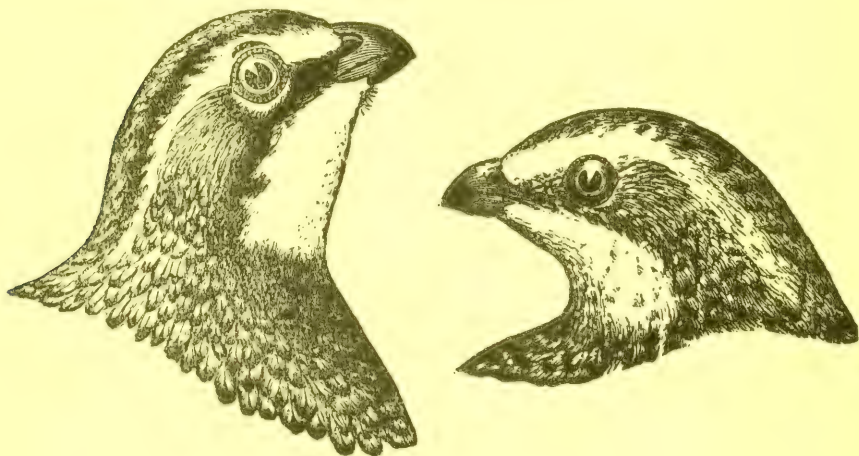
Should an accident befall the female, which sometimes unfortunately occurs, the male takes the whole duty of incubation upon himself. If the nest should be disturbed before the setting is complete it is usually abandoned, but should incubation have commenced they will return and hatch their brood.

The young birds leave the nest as soon as hatched and are often seen with fragments of the shell still clinging to them, and follow the mother bird. Upon being disturbed the young, at the warning note from the parent bird, scatter in all directions and are very hard to be found, owing to their color, so near that of the ground, dry grass and leaves. As soon as the young birds are able to fly they are taken in charge by the male and the hen proceeds to lay a second complement.

They are never to be found in large flocks, each covey generally keeping to itself and rarely moves far from the place where it was raised except on account of change of feed in the fall.

The mating season begins in April when the covey, or such as remain, begin to break up, each pair selecting a suitable nesting site.

During the past five years thousands of quail have been shipped from Kansas, Nebraska, and other Western States, to New England, and liberated to replenish the stock of resident birds which was almost exhausted. They thrive well.



Bob White, male and female, natural size.



(12a)

Texan Bob White.

Photo from life by
Dr. R. W. Shufeldt.

FLORIDA BOB WHITE*Colinus virginianus floridanus* (COUES.)

Geog. Dist.—Florida.

SP. CHAR. "Rather smaller, the male about the size of the female *C. VIRGINIANUS*, but bill relatively larger, and jet black; colors darker, all the black markings heavier, those of the under parts nearly as broad as the intervening white spaces. (†)

NESTS AND EGGS

General nesting habits and peculiarities the same as the *C. VIRGINIANUS*, eggs slightly smaller. The nesting season commences about a month earlier and the complement is less in number, averaging 11 to 13.

HABITS

Generally the same as the *C. VIRGINIANUS*. The mating season commencing about a month earlier.

Very tame and confiding and when not molested prefer to live near the habitation of man, probably owing to their greater security from attacks of beasts and birds of prey.

They prefer an open woods grown up with saw-palmetto, low bushes, or fields with woods near them and are particularly fond of slovenly cultivated fields, grown up to bushes and weeds along the borders.

Their food consists of insects, seeds and cabbage-palm berries.

TEXAN BOB WHITE*Colinus virginianus texanus* (LAWR.)

Geog. Dist.—Texas and North-Eastern Mexico, north to Western Kansas.

SP. CHAR. "General appearance that of *C. VIRGINIANUS*. Chin, throat, fore-head and strip over the eye white. Stripe behind the eye, continuous with a collar across the lower part of the throat, black. Under parts white, with zigzag transverse bars of black. Above, pale brownish red, strongly tinged with ash, the feathers all faintly though distinctly mottled with black; the lower back, scapulars and tertials much blotched with black, the latter edged on both sides and to some extent transversely barred with brownish white. Secondaries with transverse bars of the same on the outer web. Wing coverts coarsely and conspicuously barred with blackish. Lower part of neck (except before) streaked with black and white.

"Female with the white of the head changed to brownish yellow; the black of the head wanting." *

* Goss' Birds of Kansas.

† Coues Key to North American Birds.

	Length	Stretch of wing	Wing	Tail	Tarsus	Bill
Male.....	9.25	14.25	4.25	2.50	1.15	.55
Female....	9.00	14.00	4.20	2.40	1.15	.50

Iris brown; bill and claws black; legs and feet olive gray. (*)

NESTS AND EGGS

The nesting habits and peculiarities of this species do not differ materially from those of the *C. VIRGINIANUS*. The eggs are slightly smaller and about the same in numbers.

The favorite nesting site of this species is a bunch of sedge-grass. J. A. Singley of Giddings, Texas, reports the finding of five eggs in the nest of a domestic hen not over thirty yards from a farm house. (a)

Two or three broods are reared in a season, complete settings being found as early as May 3rd, to late in September. An unusual complement of thirty-three eggs is noted but a reference is lacking. Eggs measure 1.04 x .98 to 1.20 x .95.

HABITS

This species is somewhat smaller and lighter colored than the *C. VIRGINIANUS*. It is a bird of the lowlands and is not found above two thousand feet altitude.

Its food consists of small berries, acorns, green buds and leaves of aromatic herbs and small shrubs varied with an occasional beetle, grasshopper, and ants, especially the winged female of which they are very fond.

They are very unsuspicious and their low notes uttered while feeding attracts many enemies, notably: the marsh hawk, fox, and the large rattlesnake, their worst enemy, so common in Texas. Many young are destroyed yearly by the heavy rains of June and July, and large numbers perish from cold and protracted wet weather.

During the extreme hot weather of the summer months they may always be found under the large live oaks of the prairies.

CUBAN BOB WHITE

Colinus virginianus cubanensis (Gould.)

Geog. Dist.—Cuba and South-Western Florida.

SP. CHAR.—Slightly smaller and darker colored than the *C. V. FLORIDANUS*.

(a) Bendire's Works.

* Goss' Birds of Kansas.



(14a)

Masked Bob White

Photo by Dr. Shufeldt from Seaton's Colored Plates.

NESTS AND EGGS

Quoting Dr. Jaun Viaro, professor of natural history, University of Havana, Cuba: "The Cuban Bob White lays from ten to eighteen eggs; these are usually deposited, between the months of April and July, in a slight cavity of the ground, sheltered by vegetation."

HABITS

Specimens intermediate between the Cuban and Florida Bob White have been taken on the east coast of Florida, near Miami, Dade County. Locally it is known as "Codorniz."

It is common in Florida where it is not found at any time in the heavy forests, but along the outskirts, in the bushes and undergrowth. It feeds on small fruit, seeds and leafy shoots.

The male, according to the late Maj. Bendire, assists in the duty of incubation.

MASKED BOB WHITE

Colinus ridgwayi (Brewst.)

Geog. Dist.—Sonora to Southern Arizona.

SP. CHAR. "Male, adult. Whole head, neck, and throat black, except the centre of the crown posteriorly and occipital and nuchal regions, which are varied with black, white, and cinnamon, the black predominating; under parts warm brownish cinnamon, immaculate except on the flanks, where a few of the feathers are spotted marginally with white and dull black, and on the under tail-coverts, the central feathers of which are broadly tipped with brownish-white and crossed with v-shaped bars of black; inner secondaries, wing-coverts, scapulars, and fore part of back of nearly the same color as the under parts but paler and pinker, the feathers everywhere barred and mottled with whitish and dark brown or dull black; upper tail-coverts, rump, and back posteriorly grayish-drab, obscurely barred and mottled with dark brown and whitish; primaries drab, mottled with whitish on their outer webs; tail feathers bluish-ash, finely vermiculated with pale brown and whitish, most strongly on the central pair. Bill black; legs and feet horn color. Length 9.70; extent, 14.50; wing, 4.45; tail, 2.75; tarsus, 1.20; bill, .30 deep by .34 long from nostril. —Type, No.2599, Coll.F.Stephens.

This species seems to most nearly resemble *C. COYOLCOS*, but differs in the restriction of the black to the head, neck and throat, in the absence of white frontal and superciliary stripes, and in its decidedly larger size. (b)

The type specimen was taken by Mr. Stephens, Aug. 11, about

(b) The Auk, Vol. II, No. 2, April, 1885, p. 199,

eighteen miles southwest of Sasabe, Sonora, Mexico, hence very near the boundray. Mr. Stephen on the same trip saw a precisely similar bird a few miles north of the line, and within Arizona and he writes me that he has recently examined two specimens which were actually taken in Arizona, thus adding the species to our fauna. (b)

NESTS AND EGGS

Similar to previous variety. The nesting season begins early in May. Average eleven eggs in a complement.

HABITS

This species does not appear to be a mountain bird, living in the mesas (table lands) in the valleys and possibly in the foothills. They call "Bob White" and also a second call "Hoo-we," articulated and as clear cut as the bob white. This second call is used when the birds are scattered and more especially when separated near night-fall. They are very plump and over-match the Arizona Quail in size.

Their food consists of mustard seeds, chaparral berries, beetles, grass-hoppers, red ants, green leaves, etc.

MOUNTAIN PARTRIDGE

Oreortyx pictus. (Dougl.)

Geog. Dist.—Pacific Coast from Santa Barbara north to Washington.

SP. CHAR. Back, wings and tail olive-brown, the inner secondaries and tertiaries bordered with whitish or tawny, forming a lengthwise border in single line when the wings are folded; the primaries and tail-feathers fuscous, minutely marbled with the color of the back. Fore-parts, above and below, slaty-blue (above more or less glossed with the olive shade of the back, below minutely marbled with black); the throat chestnut, immediately bordered laterally with black, then framed in a firm white line, broken through the eye, reappearing around base of under mandible. Extreme forehead whitish. The arrow-plumes black. Belly chestnut, the sides banded with broad bars of black and white, or rufous-white; middle of the lower belly, tibia, and flanks, whitish or rufous; crissum velvety-black, streaked with chestnut. Bill dusky, paler below; feet brown. Length 11.00–12.00; extent 16.00–17.00; wing 5.00–5.50; tail 3.00–3.50; tarsus 1.67; middle toe and claw about the same. (†)

NESTS AND EGGS

The eggs of this species are placed in a nest of dead leaves, on

† Cones Key to North American Birds.

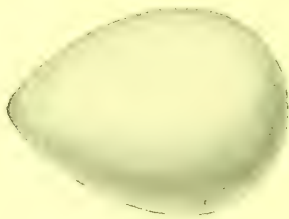
(b) The Auk, Vol. II, No. 2, April, 1885, p. 199.



(16a)

Mountain Partridge.

American Ornithology.



the ground beside or under an old log, or on a side hill under a thick bush or clump of ferns, occasionally along the edge of clearings, grain fields or meadows. The eggs, six to sixteen in number, usually ten to fourteen, vary from a pale cream color to rich creamy buff; unspotted; short ovate in form. Nesting commences in May, and ordinarily but one brood is raised in a season. The eggs measure 1.36 x 1.02.

HABITS

This species is a larger and more handsome bird than the Bob White, being the largest of the American Partridges. The plumes which adorn the head are two in number, arrow-like and from three to four inches in length. These are noticable in the chick in the form of tufts of down.

It is found breeding in the higher mountain ranges, not below 4000 feet, and is a constant resident wherever found. It is found very abundant in Oregon.

Prof. O. B. Johnson of the University of Washington (Seattle) reports a covey wintering in a barn lot with the domestic poultry at the outskirts of Seattle. (a)

Their food consists of insects and various kinds of seeds, and grain is never refused where it can be obtained.

PLUMED PARTRIDGE

Oreortyx pictus plumiferus. (Gould.)

Geog. Dist.—Sierra Nevada ranges from Oregon southward; coast ranges of California to Cape St. Lucas. South of latitude 34 deg. in California only.

SP. CHAR. Above grayish olive, the hind-neck usually partly or wholly plumbeous, like the breast; inner edges of tertials light buff or buffy white; forehead distinctly paler (often whitish) anteriorly. (‡)

NESTS AND EGGS

The nest is but a slight depression in the ground, scratched out, and lined with dry leaves, pine needles and such feathers as are lost by the hen during incubation. It is situated along or under an old log, under low bushes, tufts of weeds or ferns. The favorite nesting site is in the vicinity of logging camps, under the fallen tops of pine trees that are left by the choppers, which offer an excellent cover for their nests. The mating season com-

(a) Bendire's Works.

‡ Ridgways Nomiculture

mences the latter part of March or early in April. Complete complements are reported as early as April 7th and as late as August 15th, according to the latitude and altitude. Eggs ten to nineteen in number.

In the higher mountains but a single brood is raised in a season while in the lower foot-hills two broods are raised, the male caring for the first brood while the female is hatching the second.

HABITS

Similar to the Mountain Partridge, in fact it is often known by that name and is more deserving of the title than the previous species.

Its food consists of insects, buds and tender tops of leguminous plants, small seeds and berries of various kinds.

SAN PEDRO PARTRIDGE

Oreortyx pictus cofinis.

Geog. Dist.—San Pedro Mountains, Lower California and southward.

SP. CHAR. Upper parts grayer; bill thicker than *O. PICTUS*.

NESTS AND EGGS

Nesting habits the same as the preceding species, eggs resemble in shape, color and number.

HABITS

Same as preceding species.

Breeding range from foot-hills to tops of the highest peaks (up to about 12,500 feet), not common below 2,500 feet altitude.

SCALED PARTRIDGE

Callipepla squamata. (Vig.)

Geog. Dist.—Northern Mexico and border of the United States, from Western Texas to New Mexico and Southern Arizona.

SP. CHAR. General color bluish-plumbeous, shading into olive-brown on the back and wings and to rufous on the under parts behind the wings, with a large abdominal area of orange-brown; the feathers of the neck all around and most of those of the under parts, sharply edged with black, producing a peculiar shell like appearance; on the breast the feathers also concealed reddish shaft-lines. Long feathers of the sides like the back in color, with white brown-edged stripes or long-oval spots. On the flank and crissum the feathers lose the scaly appearance, becoming blended rusty-brown, with linear, sagittate, or cordate dark spots. Inner secondaries edged with buff or whitish, affording to the folded wing the lengthwise stripe so char-



(180)

Chestnut-bellied Scaled Partridge.

Photo from life, by
Dr. R. W. Shufeldt.

acteristic of N. A. partridges. Quills plain fuscous; tailfeathers plumbeous. No definite stripes about the head; crest dark brown ending in pure white. Length 10.00–11.00; extent 14.50–15.50; wing 4.50; tail 3.50; tarsus 1.25; middle toe and claw 1.04.

FEMALE; little different; head markings the same; the orange-brown of the belly reduced or wanting; size rather less. (†)

NESTS AND EGGS

The mating season begins as early as March; nesting commencing early in April and until late in September. The nest is placed upon the ground under the shelter of a yucca or a small bush, and is a slight depression in the ground, scratched out and but scantily lined with coarse grasses. Occasionally a wheat or grain field, alfalfa meadow or potato patch is selected as a nesting site.

Two and even three broods are raised in a season, numbering from nine to sixteen each. The eggs are white or creamy white irregularly dotted with specks of various shades, buff, vandyke brown and lilac; size, 1.24 x .94.

HABITS

This handsome bird is usually known as the Blue Quail, also "White Top-knot Quail." It is a constant resident of Southwestern Texas along the valley of the Rio Grande. Very common in some portions of Southern Arizona in the open valleys, plains and along the foot-hills, shunning the timbered country. Is very shy and wary, difficult to approach; preferring to trust to its legs almost entirely as a means of escape, being an expert and swift runner, dodging in and out among the bushes with great ease and dexterity. The covey generally follow a leader in indian-file fashion, ranging from twenty-five to sixty or eighty in a covey.

Its habits seem to differ in different localities. In some regions they are found only near water, while in others they are not found near water, but always from two to five miles away from water, in which instance they have been observed to make regular visits to the watering places late in the afternoon. Good clear water is a necessity to them.

"The latter part of summer and early fall," says E. W. Nelson, "they gather into coveys, often containing several broods, as I observed in 1882 in the valley of the Gila river near Clifton, Ariz. At this season they frequent the barren hillsides or the now dry water courses and fields adjoining, associating with the Gambels

† Cones Key to North American Birds.

Partridge. They are easily trapped in the fall and winter and many are caught by the natives and taken to the markets of the larger towns of New Mexico and Arizona." (a)

Their food consists of small seeds, grain, berries of various kinds, tender tops of plants, small beetles, ants and grasshoppers.

CHESTNUT-BELLIED SCALED PARTRIDGE

Callipepla squamata eastanogastris. (Brewst.)

Geog. Dist.—Eastern Mexico and Lower Rio Grande of Texas.

SP. CHAR. Easily distinguished from the *C. SQUAMATA*, being a much richer and darker colored bird; a sub-species.

NESTS AND EGGS

Mating and nesting season somewhat earlier than the preceding species. Complete complements of eggs are reported from March 11th to July 10th. Two broods are unquestionably raised in a season, ranging from ten to twenty-three each, average fifteen. The eggs resemble those of the Scaled Partridge, but are lighter in color and more thinly marked.

HABITS

General habits and food similar to that of the preceding species.

It appears to inhabit the low lands along the valley of the Rio Grande while the Scaled Partridge is confined to the table lands.

CALIFORNIA PARTRIDGE

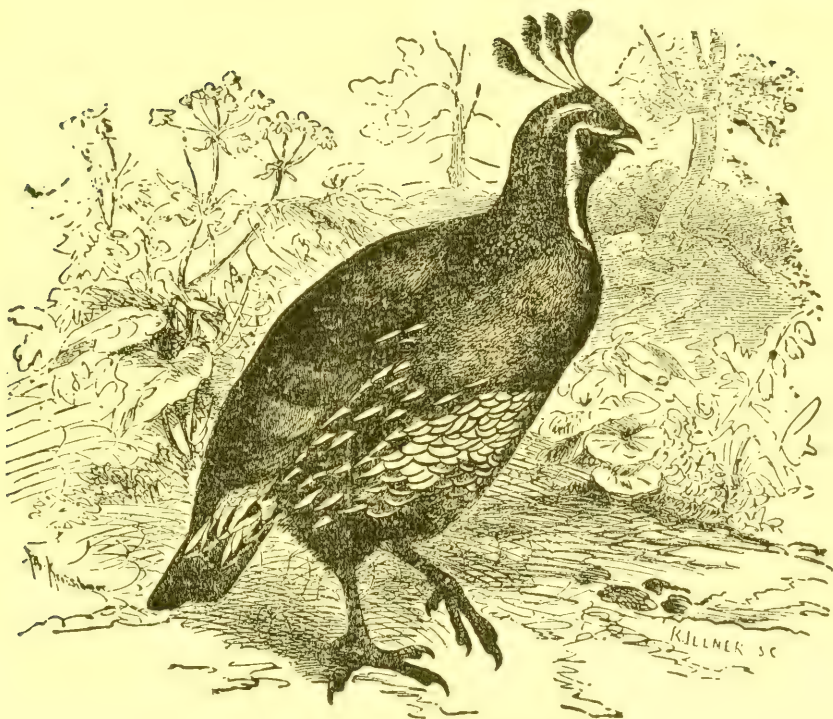
Callipepla californica (Shaw.)

Geog. Dist.—Coast region of California south to Monterey. Introduced in Oregon, Washington, and Vancouver Island, B. C.

SP. CHAR. Male. With a small white line from bill to eye; forehead whitish with black lines; occiput smoky-brown; nuchal and cervical feathers with very dark edging and shaft-lines, and fine whitish speckling. General color of upper parts ashy, with strong olive-brown gloss, the edging of the inner quills brownish-orange. Fore breast slaty-blue; other under parts tawny, deepening centrally into rich golden-brown or orange-chestnut, all the feathers sharply edged with jet-black; sides olive-ashy like the back with sharp white stripes; vent, flanks, and crissum tawny, with dark stripes. Length 10.00–11.00; wing 4.25; tail 3.75; tarsus 1.25; middle toe and claw rather more. Besides lacking the definite head-markings, the FEMALE wants the rich sienna color of the under parts, which are whitish or tawny with black semicircles as in the male, the breast is olive-gray. (†)

(a) Bendire's Works.

† Coues Key to North American Birds.



CALIFORNIA PARTRIDGE.

NESTS AND EGGS

The nests of this species are slimy affairs, placed along side of a rock, log or old stump, under a pile of brush or in a bunch of grass or weeds. Occasionally it is placed in a perfectly open situation without any concealment. Now and then a hens nest in a chicken house is used, and unusual sites are often reported, but rarely in trees. Incubation twenty-one days. Occasionally two broods are reared in a season. The eggs, twelve to sixteen in number (as many as twenty-one have been recorded), are beautifully marked. The ground color is creamy-white, occasionally a decidedly buff set is found, marked with spots and blotches of dark chestnut-brown, olivaceous drab and golden russett, generally evenly scattered; shape resembling the Bob White.

HABITS

This handsome bird, commonly called the Valley or Top-knot

Quail, has also been introduced at Grand Junction, Colorado, and is becoming quite numerous. It is abundant in Oregon, but becoming scarcer in California where fifteen years ago it was very common, this due to the excessive pursuit by gunners. A constant resident and breeds wherever it is found.

In localities where it is not constantly harrassed and hunted the California Partridge becomes surprisingly tame and confiding, becoming almost domesticated, and under such circumstances many nest close to houses, outbuildings, and in the shrubbery of the gardens adjacent to human habitations. It is much shyer and difficult to approach in the fall and winter.

Its favorite haunts are the underbrush and thickets along the water courses, brush covered hill sides and canyons, frequenting the roads, cultivated fields, vineyards and edges of clearings to feed.

The mating season commences early in March. Then the large pack, to which this species gather in the fall of the year, break up gradually, each pair selecting a suitable nesting site.

The food of the young consists of insects, small seeds and chickweed.

VALLEY PARTRIDGE

Callipepla californica vallicola (Ridgw.)

Geog. Dist. Interior Regions of California and Oregon, south to Cape St. Lucas. Western Nevada.

SP. CHAR. A paler and grayer colored bird than the *C. CALIFORNICA*; a sub-species.

NESTS AND EGGS

The mating season varies greatly, according to the occurrence of early rains. When rain is plentiful the coveys break up in March.

Nests and eggs similar to the preceding species in every respect. One brood, and not uncommonly two, are raised in a season numbering from twelve to twenty-four each.

HABITS

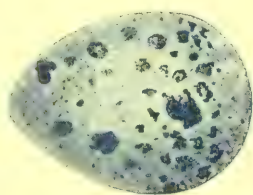
This sub-species inhabits the dryer interior valleys and foot hills throughout its range. In the Coso Mountains and on the west slope of Walkers Pass in the Sierra Nevada range in California it is found to range from the lowest part of the valley up through



(22a)

Gambel's Partridge.

American Ornithology.



the canyons to the tops of the highest peaks, where it quite closely associates with the Mountain Quail during the breeding season.

Introduced at Ogden, Utah where it is now found. Resident and breeds throughout its range. Becoming scarcer in California.

A. C. Lowell, in Bendire's Life History of North American Birds, states that these birds are unable to stand the severe cold, especially when accompanied by a heavy fall of snow.

It is never found in cultivated fields but remains on the brush covered hill sides. Roosts in the thick brush, but on the ground when brush is at hand.

GAMBEL'S PARTRIDGE

Callipepla gambelii. (Nutt.)

Geog. Dist.—Northern Mexico, Arizona, New Mexico, Southern Utah, Western Texas and Southern Nevada.

SP. CHAR. Male. Without white loreal line; forehead black with whitish lines; occiput chestnut; nuchal and cervical feathers with dark shaft lines, but few dark edgings or none, and no white speckling. General color of upper parts clear ashy, the edging of the inner quills white. Fore-breast like the back; other under parts whitish, the middle of the belly with a large jet-black patch; sides rich purplish-chestnut, with sharp white stripes; vent, flanks and crissum white with dusky streaks. Bill black; iris brown.

Besides lacking the definite head markings the FEMALE wants the black abdominal area, where the feathers are whitish with dark lengthwise touches; crest dark brown, not recurved, and fewer-feathered than that of the cock. Top of head grayish-brown, nearly uniform from bill to nape; throat grayish-white with slight dark pencilling. CHICKS, in the down; Bill above reddish, nearly white below; feet dull flesh-color. Head dingy yellowish, with a large brown spot on the occiput, a few black, white-streaked feathers on crown, and the crest sprouting in a week or two. Upper parts grayish-brown mottled with black spots, and conspicuously striped with white lines. Outer webs of the sprouting quills marked with blackish and whitish. Throat white; other under parts narrowly barred with black and tawny-white, striped lengthwise with pure white. Sprouting tail-feathers like the primaries. PULLETS, quarter-grown, 6–7 inches long; Leaden-gray, becoming tawny on the wings, which are still a little mottled as above described; below, light gray, nearly white on throat and belly. Breast waved with light and dark gray, with traces of the white stripes. Sides under the wings slightly fulvous or rufescent, but without definite stripes. Quills plain dusky; tail-feathers more plumbeous, marked with blackish and whitish. A broad white superciliary line. With the progress of the fall moult this dress changes for one like that of the adults, and the sexes are soon distinguishable. (†)

† Coues Key to North American Birds.

NESTS AND EGGS

The mating season commences the latter part of February, nesting the first week in April. The nest is usually slightly lined with bits of dry grass and leaves, often no lining whatever, but mere hollows in the dry sandy soil, usually under a pile of brush or in a clump of grass. Incubation twenty-one days.

Eggs ten to twenty-four in number, short ovate in form, resembling the *C. CALIFORNICA* in color and markings.

HABITS

This is the characteristic game bird of Arizona, it is also known as the Arizona Quail. It is essentially a desert bird. Replaced in Texas by the Massena Partridge. W. E. D. Scott found it distributed throughout the entire Catalina region of Arizona below an altitude of 5,000 feet. (Æ)

During the hot weather it prefers to remain in the cool spots of the creek bottoms, frequently perching in the trees and readily taking to trees at all times.

MASSENA PARTRIDGE

Cyrtonyx montezumae (Vig.)

Geog. Dist.—Tablelands of Mexico from the City of Mexico north to Western Texas, New Mexico and Arizona.

SP. CHAR. Male: Upper parts intimately waved with black and reddish-brown and fawny-brown, and marked with sharp buff or whitish shaft-lines; on the wings the irregular black variegation changing to black bars and round spots, in regular paired series on each feather. Outer quills fuscous, their outer webs spotted with white or buff. Under parts crowded with innumerable round white spots on a dark ground, several pairs on each feather; the middle line of the breast and belly mahogany-colored, the flanks, vent and crissum velvety-black. Top of head black in front, with slight white touches, changing on the crest to brown. Sides of head and throat fantastically striped with black and white; a broad black throat-patch; another on the cheeks; across lores and alongside of crown; a third on the ear-coverts; a fourth bordering the white all around behind. Length about 9.00; extent 17.00; wing 4.75; tail 2.00; tarsus 1.20; middle toe and claw 1.60; its claw alone 0.50. FEMALE: Upper parts as in the male, but the markings of the wings less regular, more assimilated with the general variegation, and the tone more fulvous. No peculiar marks on head, throat whitish or buff; general tone of the under parts pale purplish-cinnamon, with fine mottling of black and white on each feather. YOUNG MALE: Resembling the hen, but the under parts ochrey or whitish with black variegation.

Æ Davies' Nests & Eggs of North American Birds.



CHICKS: scarcely fledged, 3 - 4 inches long. Bill reddish above; whitish below; feet dull brownish. Above, light warm brown, varied with black, boldly striped with white—each feather having a hammer-headed white shaft-line. Some inner wing-quills like the back; others dusky with whitish shafts, broken-barred with buff, chiefly on outer webs. Below, buffy-white, with numberless spots of blackish paired on each feather, sharp and circular on breast, further back widening to bars. (†)

NESTS AND EGGS

Nesting habits similar to preceding species. Eggs, eight to fifteen in number; white, smooth grain, ovate in form, otherwise resembling the Bob White.

HABITS

This is one of the least known game birds of the United States. Very showy in full plumage. Better known in Western Texas as the Black or Black-bellied Quail, also as the Fool Quail.

They are known to readily adapt themselves to changed conditions of life and are frequently confined in cages after having been caught from a wild state.

Rarely seen in large numbers, usually six to ten in a covey. Migratory, going southward in the fall. Very fond of dusting themselves in the road. Of a very confiding disposition which has given it the name of Fool Quail. The pole-cat is their principle enemy.

Their food consists of bulberous roots, seeds of lagumanous plants, grain, and grass roots. They are very fond of cactus seeds and insects, and seem to be very partial to coarse sand.

EUROPEAN QUAIL

Coturnix coturnix (Linn.)

Geog. Dist.—Europe, Asia, etc. Introduced into the United States.

SP. CHAR. Upper parts variegated with buff or whitish and black upon a mixed reddish-brown and gray ground, the most conspicuous markings being sharp lance-linear lengthwise stripes of buff or whitish over most of the upper parts, these dashes mostly edged with black; other less prominent buff or whitish cross-bars, several to a feather, likewise framed in black. Crown mixed brown and black, with sharp median and lateral buff stripes. Throat white, bounded before by a dark bar curving down behind the auriculars; behind, by a necklace of ruddy-brown, blackish, of whitish spots; chin varied with dark marks in advance of the auricular bar. Under parts fading to whitish from the buff or pale yellowish-brown breast, with-

† Coues Key to North American Birds.

out any dark crossbars, but the long feathers of the sides and flanks with large and conspicuous white shaft-stripes and otherwise variegated with black, brown, and buff. Primaries fuscous, spotted with light brown on outer webs; secondaries similar, but the markings becoming bars on both webs. Tail-feathers brownish-black, much varied with shaft-lines, cross-bars, and edgings of buff; crissum immaculate, like the abdomen. Bill dark; feet pale; iris dark brown. Length about 7.00; wing 3.75; tail 1.75; tarsus 1.00; middle toe and claw rather more. (†)

In taking up this foreign species we rely greatly on a foreign author for data relative to its nesting, eggs and habits. Our text is drawn from his work and to him all credit is due, namely, J. M. Bechstein, M. D., in his "Cage and Chamber Birds," revised by H. G. Adams.

The noting of the European Quail in this volume is made necessary by the importation of large numbers of these birds into the Eastern States, north to New Brunswick. The permanent naturalization of it is still questionable, either climatic conditions or food are unsuited to them.

NESTS AND EGGS

The only nest formed by this Quail, is a hole scratched in the ground, and lined with a few straws or grass stalks. The female does not lay her eggs, which are ten to fourteen in number, and bluish white with large brown spots, till late in the year, often not till July. Incubation twenty-one days.

HABITS

This Quail is a bird of passage, arriving in Germany in May and departing about the end of September. It frequents the fields of grain and especially those of autumn-sown wheat.

Their food consists of all kinds of seeds and grain, for example, wheat, millet, rape, hemp and poppy seeds. It also feeds upon green plants and insects; and is very fond of ants' eggs.

It moults twice a year, namely in the spring and autumn. The females hatch their eggs and rear the young birds, which run about with their mother before they are fledged; though this takes place before the autumn migration. One brood is raised in a season.

† Coues Key to North American Birds.



(28a)

Bob White Male Incubating.

Photo from life by Geo. E. Moulthrop.
Published by Dr. R. W. Shufeldt.

QUAILOLOGY.

Part II.

DOMESTICATION, PROPAGATION, CARE & TREATMENT OF WILD QUAIL IN CONFINEMENT.



Introductory



While it is a little departure from the established custom to make introductory remarks at this time, we never-the-less wish here to sound a warning note to those few who are ever ready to "take-up and jump-into" a new hobby, culture, fancy or venture.

The taming of and careing for the Quail is by no means a trivial affair, and to those who think it such we want to say, study the following pages carefully, and weigh in your own mind fairly and squarely, without imagination, what there is for you to do in the culture of the Quail.

We do not say that anyone can raise Quail, because they cannot, unless they care for them properly. True, there is no great amount of labor and attention required, but that little must be done.

The Quail, while it is one of our game birds, is also one of the innocent creatures of God's creation that bids our esteem in its native haunts and our careful attention and kind treatment in confinement. The successful one in the culture is he or she that loves it, takes naturally to it, sees in it the beautiful lines of nature's handiwork and cultivates them. The mere "water, feed and sell" man may succeed fairly well, but much more the one who studies carefully the peculiarities, habits, food and conditions that Mother Nature produces in her world-wide aviary, and

applies them to the comfort of his caged birds. Therefore it is essential that we know these, and from the preceding pages devoted to Ornithology, some good points may be learned. Review them well and then let us procede.



History



We have often heard the remark made, "Oh you can't tame a Quail," "You never can tame them," etc, but we have tamed them, gained their confidence, and so long as we keep it we shall continue to bring them nearer to complete domestication in the full meaning of the word.

A work issued several years ago, and from which a number of reprints have been made and widely distributed, claims the culture of the quail to be of recent years and in a little story gives the process, in several sections, of raising quail for profit and pleasure. However, the culture dates prior to eighteen hundred and ninty in America, while in Europe a work bearing the date of October 20, 1794 tells of the choice European Quail, so valued as a pet and singer. They were trained to sing, and a bird uttering their peculiar note "Pickvervik!" ten times in succession was highly prized while a very valuable bird is recorded as uttering it thirty times. The work also treats on the methods of taking, careing and feeding.

In this country numbers of naturalists and lovers of nature have, in years past, tamed the quail, but is true that the advancement of the culture has gained ground in the last five years. This due to the fact that these game birds are becoming scarcer and their preservation is of importance and it lays with the true fancier to save them from extermination, by domestication.

The author has bred quails from a fanciers standpoint for a number of years, and has received hundreds of inquiries for information such as we shall endeavor to impart here. Many others have been breeding and experimenting with quail and we have given space to their views on this subject in another part of this work.

In 1899, an association was formed, styled The National Quail

Breeders Association, of which the writer was and is Corresponding Secretary, having as its object the general advancement of the culture and the dissemination of a more thorough knowledge of these game birds together with the pleasure and profit to be derived from the intelligent care and breeding of the several varieties. Up to the present time very little has been done but it is to be hoped that some progress will be made during the coming season.



Procuring Stock



The procuring of stock will first receive our attention, while it might possibly have been better for us to have considered a home for the birds, before procuring them. Never-the-less we infer the amateur will study this work thoroughly, before venturing into the culture, and have an aviary all ready for the reception of his stock.

There are several ways of procuring a start; procure eggs and hatch out the chicks; trap the wild birds; or purchase domesticated stock from some reliable fancier, we wont say dealer, as we trust there are none who come under that term as we define it, "water, feed and sell" regardless of merit.

Eggs may be secured from the nests of the wild birds. The reader will find the Ornithological portion of this work valuable in determining when and where to search for the nests and eggs of the various species. When found, if the nest does not contain a full setting do not disturb it, as you are liable to cause the female to abandon it. Watch it as closely as possible and when the female stops laying remove the eggs and pack them carefully in in saw-dust or cotton, and as soon as possible transfer them to the incubator or place them under a hen. The hatching out will receive our attention later on.

Wild birds may often be obtained from commission merchants in the larger cities, as they often receive crates of live birds for the markets. In purchasing these, however, one runs considerable risk of losing his stock, owing to the fact that many are injured in transit or injure themselves while confined in the

crates. The long journey and improper food also has a disastrous effect on them. However some choice birds can be secured as well as those of various species. I have seen the commonly called Mexican Blue Quail in Chicago markets, and frequently, I am told, other varieties are received.

Where game laws do not conflict, or upon your own premises, a good plan is to trap the old birds. This should be done in the fall or early winter and the birds placed in their permanent quarters as soon as possible so that they may become accustomed to their surroundings and begin to breed the following spring. The use of the regular Partridge or Quail Nets is a good method, or box traps. Where it possible to secure a male or female to use as a decoy, the operation of trapping is easily facilitated, but where none can be had, the beginner must wait until the ground is covered with snow and feed is scarce, to make any progress in trapping. We will not go into the question of traps and nets as we presume there are but few who do not know how to make box traps or set a net, and where the quail are most likely to be found in his neighborhood.



The Aviary



This is a question upon which only suggestions and general remarks can be made and the essential points brought out. We assume that our ideas vary and that your circumstances and conditions may not permit of your following a fixed plan.

In constructing an aviary we must remember that the quails need plenty of fresh air and sunlight, also a certain amount of shelter. Many birds perish every winter, in their native haunts, from cold and exposure, so we must have a certain amount of shelter for them. Again some varieties require more shelter than others owing to the variation from the climatic conditions of their native ranges.

With the exception of one or two varieties, the quail family all roost on the ground and seldom take to the trees so that it is not necessary that we should build the aviary or shelter house high. It should be kept clean and well painted throughout every season with carbolineum, or whitewashed. With the the exception of the house it should not be floored as the birds delight to scratch and dust themselves.

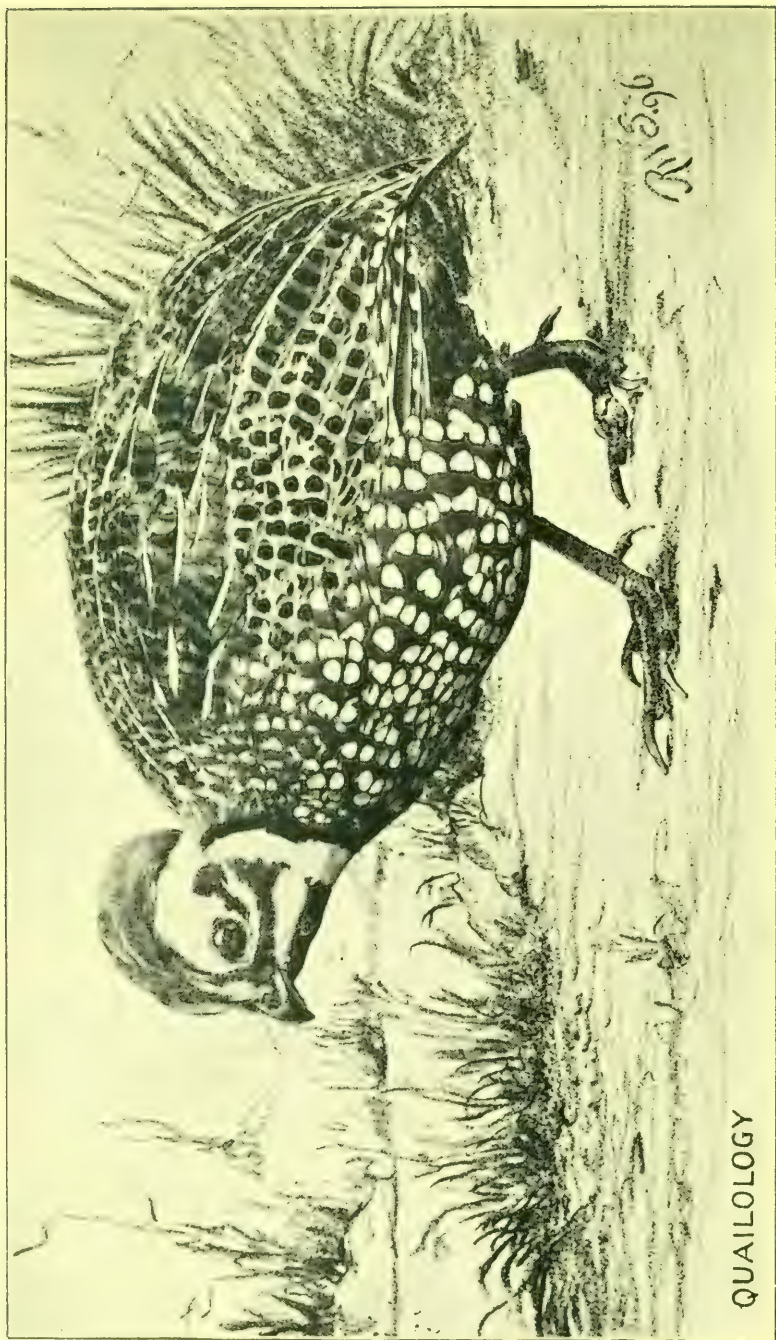
When possible the aviary should be placed on a grassy plot and where there are such, over an ant-hill, as the birds are very fond of ants and ants' eggs.

Our breeding pens are 12 x 8 and 3 1-2 feet high. One end and the top are boarded up, and a trap door placed in the top to admit of access in cleaning and feeding. A twelve inch board is placed on the bottom of either side and the remainder of the sides covered with inch mesh woven wire. During the breeding season a foot wire screen is placed above the foot boards, the entire length, to keep the little chicks from escaping. The remaining end is closed by one side of the nesting and shelter house, it a trifle higher and sloping to two and a half feet behind, and three feet in width. In this are placed a row of nesting boxes, shelves for the birds to roost on if they choose to in bad weather, dusting and grit boxes. A window, which may be darkened during the nesting season, is placed in one end for light, and a door to admit of cleaning, etc, at the other end. This is so constructed as to be warm during the winter and well ventilated during the summer, and forms a quiet retreat for the birds at all times. Openings, which may be closed when desired, are cut to admit of passage to and from the house to the run. The house is well floored and during the winter the floor is covered, to a depth of two or three inches, with nice clean straw, and our birds never suffer from the cold. In the run we place a dusting box, which is kept filled with road dust, a grit box and a very shallow water dish, this should not contain more than a half inch of water as we once had the

misfortune to lose a brood of young chicks by their getting drowned in a deep water dish. A few perches in the run, and a pile of brush with a little straw thrown over it to serve as a run retreat, and we have an aviary that is large enough for a dozen to eighteen birds and their chicks, an aviary that is not so cumbersome but what it can be moved from one spot to another. We will add, however, that it is advisable to sink an inch mesh woven wire, to the depth of eighteen inches, all around the aviary, and attached to it, to prevent their greatest enemy, rats, from gaining access to the birds.

Taming The Wild Quail

Having our aviary in readiness for the wild birds we have trapped or netted, we will, before placing them in their permanent quarters, proceed to overcome their wild nature and gain at least a portion of their confidence, and accustom them to our attention and approach. First we will place them in a taming box especially designed for that purpose, a small box only large enough to admit of their turning around and stretching their legs. The front may be covered with common wire screen and the top **MUST** be made of cloth, for the reason that the quail, when startled, are addicted to springing up, and they go with considerable force. If the top be made of wood they are very apt to injure themselves and die from the effects. A door is made in one end to admit of feed and water and we are ready for the birds. Gently stroking them, we place them one by one into the box, and without disturbing them or allowing them to be disturbed, we leave them to themselves until feeding time. We feed them twice a day at regular hours, and as often as opportunity permits or our time allows, we open the little door and caress the birds, stroking them gently and calling them by name or softly imitating their note call, take one



QUAIOLOGY

(32a)

Massena Partridge.

By Dr. R. W. Shufeldt.

out and caress it gently for a few minutes and then place it back and take up another. Their box is small and they have not the opportunity to flutter and fly around and become wilder. They soon learn that they are not to be harmed and submit to caressing, where if the box was larger we would scare the life out of them in trying to place our hands on them, this is one object of the smallness of the box. Another is, that taken from their world-wide aviary and placed in a cage of any size they would feel the sense of confinement, and being subjected to close confinement at first, they more fully appreciate the liberties of a larger aviary when placed in their permanent quarters. As they grow tamer we increase the range of their liberties and place them in a larger box, and finally place them in their permanent quarters, where they soon begin to feel at home and are not disturbed at our approach.

A greater number of birds may be handled successfully by the use of two boxes, barely large enough to hold them, and transferring the birds from one to the other several times a day, carefully caressing each one and imitating its note-call as it is transferred.

It is a certain fact that there is a difference in people, and that some have a more convincing way that appeals to wild nature, than others, but if care and kind treatment are used most anyone can overcome the wildest of nature in the quail.

A certain breeder offers the following method by which the quail may be tamed and brought under complete control in the space of a few hours.—“A portion—larger, or smaller, in proportion to the wildness of the bird—is cut off from the inner plume of the pen feathers, so that the bird cannot hurt itself if it attempts to leave the hand, and the external appearance of the wing is not impaired. The nostrils of the bird are then touched with bergamot, or any odorous oil, by which it is for a time so stupefied, as to perch quietly on the finger, or to hop from one finger to another. It may indeed attempt to

fly away once or twice; but this is not often repeated especially if the experiment be tried in a dark place—as for example, behind a curtain, which offers the further advantage that if the bird should fall it is not liable to hurt itself. As soon as it sits quietly on any one finger, another finger must be placed in such a position as to cause the bird to step upon it; and as soon as it is accustomed to hop quietly from one finger to another, the main difficulty is overcome. For if when the bird is gradually aroused from its state of stupefaction, it perceives that its teacher does not use it roughly, it may by degrees be taught to manifest perfect obedience to his commands. Etc.....”

This method may be allright for all we know, we have never tried it, but we prefer the former method to taking any chance of losing a bird by an overdose, which is liable to occur especially when the bird is first taken and is highly excited.

Patience, good care and kind treatment seldom fail to reward.



No other bird is more fascinating, more affectionate, more pleasing, or more cleanly in its habits, than the quail. It is far more affectionate than the pet bantams. His note-call is a signal of a hearty “Good Morning”; a pleasant thought of a day well spent.

“But lingers yet, it’s sweet “Bob-White.”

A cheerful companion at all times, but his training and teaching is not of a trivial nature. Not the old bird, but the youngest chick, just out of the shell, must be the subject of our training, for a pet.

The better plan is to take the brood hatched out by a pet bantam hen, preferably a Buff Cochins, or even better an incubator hatched brood. In the latter case, however, we will

need the service of a brooder. (This will be referred to in "Feed and Care of Chicks.") Place the foster-mother and her brood in your office, place of business, shop, or home, where they will come under your attention, so to speak, a hundred times a day. Their cage may be made suitable for the place it is to occupy, but such as will admit of room for them to run and stretch their tiny legs, due regard being given to the question of sunlight, ventilation, and protection against cats. Feed them often at first, but don't overfeed them. Invite them to pick a morsel from your finger; if they have not had their appetite fully satisfied, they will pick at it out of curiosity, and finding it good to eat they are ready for another invitation. Teach them to perch upon your finger; they may resist a little at first, but patience and a little petting will encourage them. Invite their song by imitating the note-call of their species. Under proper care and treatment they will thrive and become very tame under your care and may be taught to respond a cheery "Bob-White" at your signal, as well as come at your command.

Care should be taken to keep the little fellows out of hearing distance of wild or semi-tamed birds, as they will very soon teach them to be shy by their warning calls. For this reason it is not advisable to attempt to tame chicks hatched by the quail, unless a perfectly tame one, as they are taught the wild traits from the moment they leave the shell.

We have not the time to devote to making perfect pets of our birds, such as would like to do. One especially, which we have christened "Dick," a male Valley Partridge, is the chief of our attention. He is quite content to perch upon our finger and be caressed, but resents any false movements with a peck of his bill. He is an all around mischief, and a fighter "from away-back." The English Pheasant cocks take a back seat for him and even our old speckled rooster says, "git-out."

Where a specialty is made of it, birds are easily tamed, taught

to obey commands and sing, as such they bring a good price.



Mating & Nesting



Here we have a subject, that a portion of which at least, is very interesting, and worthy of more discussion than we are able to give it here. There is much to be developed and brought out in the breeding of the quail. There is room for the true fancier to display his scientific ability and ingenuity in breeding for points and markings, an opportunity for interesting experiment and the improvement of species, or the cross breeding and bringing out of new species, or as we may then be permitted to say, breed, or strains. Every fancier has, or will develop, an ideal of his own and will work toward that standard. Nature has by virtue of different locations and climatic conditions, given us four variations in the Bob-White alone, to work upon—the Bob-White, Florida Bob-White Texan Bob-White and Cuban Bob-White,—all varying in the complexion of their dress, from a light ashy to a deep brownish red. In these we have an opportunity to enrich marking as well as a few points.

Again we find other divisions of the quail family, some very prolific but small in size, others of good size and attractive plumage but not so prolific breeders. “Will they cross?” we are asked. They will if conditions are right, but we are not prepared to say in this edition what the product would be. We had the misfortune to lose a setting, of a cross between a Valley Partridge cock and a Bob-White hen, this season and are exceedingly sorry to so state as we had hoped to give the result in this edition. Well, but there’ll be trouble on hand when you put them in a cage together!—Certainly there will, if the conditions are not right, in which case you are liable to lose your female. Use a little “Yankee Ingenuity” and the result





will be more favorable. Remove the birds from the rest of flock in the fall or winter; place each in an adjoining cage and allow them to remain so until spring opens up. When the female begins to show signs of mating, place them together in an aviary by themselves, removed from your other birds, and we think you will obtain results. In cross mating any species it is well to follow this plan, especially if it happens to be an odd male, as he will pursue the female with great ardour and strip her of her feathers, if she does not yield to his desires.

In mating up the Bob-White, or other varieties, the fanciers object, if he be a fancier at all, is to improve the species in size and markings, and to secure better layers. In every covey we find some culls, some on the average and a few that are to be prized above others. The latter are the ones we must look to for results in the realization of our ideal.

The making up of the breeding pens and the selection of birds should be done in October and November, and those which are of the best markings, size, and of the hens that have layed the best layers, selected to give the best results. The quail is, in instances, polygamous to a certain extent, but it is advisable to pair the birds up, as the cock is very affectionate during the nesting season and frequently performs a portion of the duties of incubation. As far as possible secure birds from unrelated coveys, to make up your breeding pens; new blood should add vitality to your stock, if well selected. Some contend that better results are obtained where smaller aviaries are used and a single pair placed in each. We have no argument to offer for this idea as we get the best possible results from our birds with seven and eight pairs in an aviary.

As no standard has yet been made, and there is none except the ideal in the eye of the fancier, much cannot be said along the line of technical mating. However, whether mating for fancy or market purposes, always select the best stock and use the culls for table purposes.

The mating season varies with different species, as will be noted by a glance at the Ornithological portion of this work. Location also governs the season to a certain extent. The nesting season follows closely.

Quails prefer to build their own nests, and in the art of home building they are expert architects, almost always concealing their nest where even the most careful observer will not easily detect it. The nesting boxes in the shelter house should be at least six inches square, and are at the disposal of the hen. A quantity of fresh dirt should be spread in each section, and into each a handful of hay or straw stuffed, the arrangement being left to the hen to shape up after her own taste. After the first brood is hatched out the nest boxes should be cleaned out and prepared for a second nesting in the same manner.



Eggs & Incubation



The common bob-white hen lays from twelve to twenty-five eggs at a setting, or from twenty-four to fifty in a season. This last number, however, is a high estimate, as the second setting is quite frequently smaller than the first. The first setting is generally large, from eighteen to twenty-five, while the second ranges from twelve up, according to the lateness of the season and the condition of the hen, after having hatched and cared for her first brood. With the possible exception of the first egg, the fertility is one hundred per cent.

Various theories are advanced as to the variation in numbers of eggs layed. The fact that the hen can cover, and successfully hatch out twenty-five eggs, disproves the theory that the instinct of the hen that she cannot cover more, prompts her to cease laying and commence to set when she has deposited some twelve or thirteen eggs in the nest. We are inclined to believe that where the settings are small, and especially the first, it is

due to the strain of the birds, improper feed and care, or to being disturbed during the laying period, and not to instinct or too early setting as we find these same variations in the case of birds in their native haunts, where conditions are invariably at their best.

The only remedy for these small settings is the careful mating up of birds and the introduction of new blood. The idea that you may cheat a quail, by removing an egg every other day after nine or ten have been layed, and thereby secure more eggs is absurd. Madam Quail is very particular about her home apartments and any derangement, or the touching of an egg before incubation has commenced, will be detected and cause her to desert the nest and seek concealment elsewhere for another setting. So that in case you wish the parent birds to hatch out their own eggs, do not disturb them at all, keep out of their private apartments altogether. They know how to conduct the hatchery.

When the eggs are to be hatched out by a bantam hen or in the incubator, the nest may be very cautiously observed to note the deposit of the first egg, then the date recorded, and when the hen has had time to complete her setting, about eighteen to twenty days, or has just commenced to set, open the nest and remove the eggs. When thus deprived of the first setting she will almost immediately proceed to prepare another nest and deposit another setting. In this manner three settings are often secured in a season.

As soon as the eggs are taken from the quails nest, whether from the wild or tame birds, they should be placed in the incubator or under a bantam as soon as possible, so that should incubation have commenced the germ will not be injured.

In selecting a bantam for hatching out quail eggs we would recommend a buff cochin, as they are good setters and make tender mothers. The nest can be made in a box sufficiently deep to permit of the top being covered with screen, and not

discommode the hen, about the time the chicks are to hatch. The bottom should be covered with fresh dirt, and a sufficient amount of clean straw or hay arranged in it to make a good nest and we are ready for the hen, which should be FREE FROM VERMIN and kept free from lice as these pests will cause the loss of every chick if allowed to affect them, and eggs. Do not give the hen more eggs than she can cover nicely. About the time the eggs are to hatch, the 19th to 21st day, cover the box with a wire screen to keep the chicks from escaping. Remove the hen and chicks the day following their hatching to their run quarters, as further noted under "Feed and Care of Chicks."

We have had considerable experience with one of Geo. H. Stahl's "Wooden Hen" incubators, 50 capacity, running it according to the regulations for hatching out chicken eggs. In connection we have used his "Hen" brooder. Our experience has been profitable in that we never lost an egg, and find our incubator hatched birds to be as healthy and much tamer than those hatched by the parent birds or bantam hens.



Feed & Care



Here we come to the most important topic of our work, for upon the feed and care of our birds greatly depends our success. Here we have again to look into the secrets of Nature for the proper articles of sustenance for them, to bring forth satisfactory results, healthy and prolific birds. Every care should be taken to supplant the conditions and food supplied by Nature. A regular hour for feeding, a variation of food, plenty of animal and vegetable matter, clean fresh water every day, grit, and a good supply of road dust for dusting purposes. The aviary should be so placed as to give plenty of sunlight and shelter during the winter months, and in the summer to

permit of some shade during the extreme hot weather. In the notes on our aviary we gave the requisites of the aviary and runs for the comfort of the birds.

The quail is prone to rustle for a living, picking up a bit of grain here, an insect there, spiced with a bit of vegetation to flavor, and now and then a few grains of sand or fine gravel to grind the mixture. Too much feed will make them too fat and tend to make them lazy, while an insufficient quantity or improper kind and variety will bring disease and unsatisfactory results in eggs and chicks.

The observing student will note that that the wild quail are found upon the feeding grounds, or along the roadsides, in search of food, in the early morning hours and late in the afternoon. Although the quail feeds more or less on insects during the day, it is at these hours that it searches for solid grain and seeds. Therefore, we make it a point to feed twice a day, the first thing in the morning and about four thirty in the afternoon.

The Spratts people have made extensive experiments along the food lines of our game birds, especially adapted for pheasants, which are also valuable in the culture of the quail. Where their game food is used, it should be mixed with water only sufficient to make it moist, not sloppy, a half pint of meal when mixed being sufficient for fifteen or sixteen birds. This, prepared a few hours before using and then mixed with a tablespoonfull of "Crissel," makes a good morning feed. A handfull of cracked corn, wheat, or buckwheat in the evening, and a supply of green food once a day, will keep them in good shape. In feeding grain give but one kind at a time and change the feed from one to the other thus keeping their appetite for each good. Where the birds are kept in movable pens, which may be moved about the lawn, changing the location daily, the giving of green food in the summer

time is obviated. In the case of stationary pens, feed clover, chick-weed, lettuce, oats, rye, etc, cut in half inch, or less lengths. This should be given fresh daily and only in such quantity as the birds will eat up well. In the winter season substitute clover meal.

Egg-O is also highly recommended by some fanciers as great food for quail, but as we have never tried it we cannot speak for or against it. Where the prepared foods are not obtainable or not preferable, a wholesome feed for a morning meal is a mash composed of clover meal, middlings, bran, ground beef scraps and boiled potatoes. In the evening the grain food as before stated.

Another good feed is a mash made of wormy currants or raisins ground up and mixed with coarse ground corn meal, bread scraps, middlings, and boiled potatoes. Merchants often throw out currants and raisins that have become wormy, which are alright for quail feed, and can be had for the taking of them away. During the winter the mash should always be fed warm in the mornings.

Among other good foods for quail are millet seed, kaffir corn, hemp, sunflower seed, fresh ground green bone, maggots, meal-worms, etc. From the food in the wild state, as noted in the Ornithological portion of this work, other foods will be noted that might be fed if they can be secured. Quail are also very fond of ants and ants' eggs. These may be secured by digging out an ant-hill, placing dirt, ants, eggs and all in a grain sack and subjecting them to the heat of an oven for a short time to cook them. Feed when desirable for a change, or mix with mash. They make quite an article in the way of a substitute for the insect food but should not be depended upon entirely as a substitute. They also make excellent food for the little chicks.

For a grit use crushed oyster shells ground fine, mica crystal grit of the pigeon size, or coarse sand and fine gravel. A



supply of grit must be kept where the birds can get it at any time.

Feed & Care of Chicks

Remove the chicks from the incubator soon after they are hatched and place them in the brooder, to which may be attached a screen run. This should, as all of the runs, etc., be protected against cats, dogs and vermin. The first thing that will apprise the mind of the chickſ is something to eat. Their curiosity is aroused by every speck. Sprinkle a little feed where they will notice it and they will soon find out what is good to eat and you will have no trouble.

Where the chicks are hatched out by a bantam; Remove them the following day, with their foster mother, to a run you have previously constructed for them. If it is to be kept indoors, it may simply be a screen pen 2 x 3 feet and two feet in heighth. If it is to be for out-of-doors and for permanent quarters until the chicks are old enough to be placed in the large aviary, it should be made larger, say 2 or 3 by 6 feet and two feet in heighth, covered with wire screen and a small shelter house constructed at one end, with suitable openings throughout for feed and care, also due protection against their many enemies. Place this aviary on the lawn or grassy plot and put the family in it. Move it frequently to new ground. Right here let us caution that all houses and runs should be placed on good high and dry ground. Damp ground or depressions where water is apt to stand are dangerous to the health of the birds, especially the young. Chicks should not be allowed to run in the wet grass. Keep them in the shelter house at such times.

If the chicks are hatched out by the parent birds they may be cared for in the large aviary, a greater assortment of feed

being required, as the old birds will help themselves to the chick food in preference to their own.

In feeding young chicks great care should be taken not to overfeed. An always hungry appetite with them is a wholesome one, besides it saves the cleaning out of stale food which should never be allowed to accumulate. Sour food of any kind is unwholesome.

The feed for the first week should consist of corn meal and middlings mixed with the raw yolks of one or more eggs. Some fanciers say hard boiled eggs; we cannot agree with them as it is the most indigestible food for little chicks. Feed the above sparingly and often at first, four or five times a day. To this may be added ants and ants' eggs, and the bread crumbs from your table will also be welcomed. A little later maggots may be added to the diet. They may be produced by exposing a piece of meat or sheep pluck to the flies and then burying it in wet bran for a few days. A little millet seed can now be given, and the third or fourth week you may commence to merge them onto the softer food of the old birds.

Keep the water dishes clean and a supply of fresh water always in them, not too much, as it don't take a great amount of water for a little quail, no bigger than the end of your thumb, to get drowned in.

Give a little grit in the form of sand, and don't fail to be ever on your guard against lice.

Enemies & Diseases

The quail in the wild state has many enemies, the biggest of which is the "game hog," but we trust our efforts here will not extend his operations. In the state we have to consider it, its enemies are not so numerous, still there are a few, the house cat being the worst. Next we may enumerate the dog,

rats, skunks, mink and insect vermin, especially lice. Of these however, quail are usually free from if they have plenty of road dust to dust themselves in.

Contagious diseases—we know of none. Occasionally a bird is lost from old age, accident or improper care. If the houses and runs are kept clean and fresh, well whitewashed or painted; the water dishes clean, and always filled with fresh water; wholesome food and plenty of grit are fed; and plenty of dusting material kept on hand for them, there is little likelihood of disease entering the flock.

The only report that we have of any affliction is by Lyman Belding of Stockton, California, who states "About one out of ten of the young Plumed Quail in Nevada, Placier, Eldorado and probably other counties in the Sierra Nevadas, are infested with tape worm. As I have never found a tape worm in an adult I suppose the young afflicted quail die before reaching maturity."

Proper Shipping

In the transportation of the quail very few people conceive the idea that a cloth top, or padded top, crate is a necessity to the safety of the birds while enroute. Quail when startled will spring upwards with great force and would injure themselves greatly if protective methods were not taken to guard against such injury. Many quail that are shipped in wooden top crates die from no other cause than that of injury to the head received by their springing upward and striking the top of the crate. This, if no other, is the chief thought we want to enforce in this section. Otherwise the crate may be made in any convenient form, with means of watering and feeding while enroute. Fasten the water dish stationary in the crate. In a sack place a sufficient quantity of grain to feed the birds while enroute,

such as wheat, buckwheat and cracked corn. Tie this to the crate with instructions to express messengers, which should be printed on your tag or label, to feed and water at 8 a. m. and 5 p. m., and that the stock is domestic and for propagation.



In Conclusion



You have read the fore-going pages of this work, and if you have gone over them carefully, as you should have, the question of whether it is much trouble or not, to raise quail, is settled in your own mind. They are much easier to care for than chickens, take less feed, are more cleanly, more interesting and fascinating than chickens. If the work of caring for them is properly attended to daily, and nothing left undone, the time required will be a very small consideration in caring for a large number of birds.

The pleasure you will secure from the the culture is limited only by the attention you give them. Treat them kindly, care for them well and they will entertain all of your spare moments with their antics and cheery note calls.

The work of keeping up the aviary and caring for the birds is not heavy. The greatest care being the patience of feeding and raising the young chicks not raised by the parent birds. Yet it is a pleasure, rather than labor, to care for them if you are in any way inclined to the Love of Nature.

As an article of food; it is unnecessary for us to say that the meat is a prize and that quail on toast is a delicacy.


The profit in the culture we have only to figure from a fanciers standpoint. They are now being quoted from \$3.00 to \$3.50 per dozen on the markets. That the bob-white may be increased in size under careful breeding, and command a better market price, we do not doubt. Again, when it becomes permissible to sell live domesticated quail frys, we believe that the

spring chicken will feel worse than "thirty cents." Breeding stock is far short of the demand at the present time. We have none to sell now, but could place from eight hundred to a thousand pairs in the next few weeks at \$3.00 a pair, if we had them, and for perfectly tame hand raised birds there are many five dollar bills waiting. The "birds of the field" are diminishing and the fanciers who supplant the supply with domesticated stock on the market are sure of an increasing demand for table use.


To those who wish to inquire further we would say, kindly enclose a stamp and we will cheerfully respond to your inquiries. To those in the culture we solicit an exchange of notes for mutual benefit.

In the next section we have given a few letters from fanciers and a few clippings from which we trust you may derive some good.





An exchange of Natural History Notes on
any or all of the GALLINACEOUS BIRDS and
Letters of Experience In Domestication are
solicited for the benefit of the culture.—Ed.





(48a)

Mountain Partridge.

Photo from life by
Dr. R. W. Shufeldt.

QUAILOLOGY.

Part III.

LETTERS & CLIPPINGS FROM FANCIERS WHO RAISE QUAIL.

San Francisco, Calif.

Written especially for **QUAILOLOGY**.

The breeding of the California Valley or Mountain Quail in confinement in my opinion cannot be successfully carried on, while it is true one may raise a few, but not to such an extent as to be termed successful.

I take this view of the subject from the experience of myself and friend, Ralph Miller of Santa Cruz, California, than whom no person in this state has had more extended experience or given the subject more careful consideration.

The California Valley Quail is a very game bird and one hard to domesticate. Once disturbed the female seldom returns to her nest. Some have been raised in confinement by the female quail, but the most successful plan is to set the eggs under a bantam hen. Mr. Miller and myself followed this plan with fair success.

I build my aviary 35x8x6 feet high, and if possible around a tree for the quail to hide and roost in. I also place brush and leaves in the aviary for the quail to nest in. When the quail have nested I take the eggs and place them under a bantam hen in a suitable nest. Prior to placing the hen on the nest I give her a good dose of buhach in order to kill all the vermin. On the 23rd day the eggs should hatch. I then take the hen

and chicks and place them in a pen 8x4x2 feet high. I make the sides and ends of lumber, and cover the top with one inch mesh wire, and it should be built in a sunny place and have no floor, and should be well supplied with sand and dust. Across one end of this pen I build a box the width and height of the pen and 2 feet deep, with slats in front, so as to allow the chicks to enter the main pen but prevent the hen from doing so, and so constructed that the chicks can go to her and so the hen can get her head between the slats and call and feed the chicks. I place the feed directly in front of the slats in the main pen, keeping the hen in this box until I see the chicks are strong enough to allow the hen to enter the pen with them.

I feed finely chopped chick-weed or lettuce together with boiled eggs, maggots, ground corn and mixed bird seed. I produce the maggots by exposing a piece of meat or a sheep pluck to the flies, and then putting it in a barrel and covering it with moist bran. Every three or four days I start a second lot so as to always have some on hand when I start a new lot. By following this plan the Mongolian Pheasant can be successfully raised, and I have had fair success with quail. I constantly keep plenty of good sharp grit and plenty of green feed and pure water in my aviary, and have never had any trouble with my birds. About the time I expect the eggs to hatch, I place a fine wire screen over the hen and nest in order that the chicks cannot get out of the nest else they would run away. I also remove the hen from the nest and place her in the pen as soon as possible after the eggs are hatched. I feed six times a day.

From what I have been able to observe quail and pheasant feed their young on insects for the first few days and until they become able to look after themselves a little when they begin to seek more solid food such as grain and grass seeds. I find the maggots the best and most easy procured substitute to take the place of the insects, etc, that the birds would get in their natural haunts.

The propagation of game birds such as the California Valley Quail in confinement is expensive and requires a great deal of attention. From what experience I have had, I believe that 10 pairs of quail will produce more young in their natural state than 50 pairs will or can be made to produce in confinement.

When one has a piece of cover where quail are breeding, he should allow no shooting at anything during the entire close or breeding season. To allow shooting in the vicinity of ground when quail are breeding disturbs them and they will not do near as well as if they were left entirely alone and in no way disturbed or frightened. They will pair earlier, lay more eggs, and I have known them to raise two broods of young in one year when they have been entirely undisturbed in any manner.

In my opinion the California Valley Quail is the gamiest as well as the most beautiful of the whole quail family.

WALTER R. WELCH.



Rearing Quail In Confinement.

RECREATION, N. Y. City. (\$1.00 per year.)

Union City, Pa.

In answer to David Shafer's questions in February RECREATION, would say I have bred many quail in captivity, and with considerable success.

It is best to get birds late in the fall for breeding, and keep them through the winter, as they lose much of their shyness, if properly cared for, by spring.

My breeding pens were 12 foot long, 8 feet wide, and 7 feet high. The entire front and 2-3 of the roof were made of woven wire, one inch mesh. The back and sides were boarded up; also about 1-3 of the roof. The pens should have no floor. To keep out rats, sink one inch mesh wire netting into the ground about 13 inches deep. Rats are the worst enemies of young quail in captivity. Care must be taken that the ground is free

from depressions in which the rain could form pools.

Each pen should contain a plentiful supply of loose straw and prairie grass for the young birds to hide in. A lot of cut brush in one corner or along one entire end, makes the best resting place.

The best results will be had by keeping only one pair of adult birds in a pen.

After they have been placed in their pens they should be disturbed as little as possible.

The pens should be so built that food and water can be supplied without entering them.

My henslaveraged 12 eggs a setting, although I have had them lay as many as 18. A few days before it is time for the young to appear I begin feeding hard boiled eggs and stale crackers mixed, together with dried ants' eggs and plenty of seeds.

When the young birds appeared I gave them a liberal supply of meal worms, and sometimes a little boiled beef, chopped fine.

In about six weeks the young are able to take care of themselves. Then they can be removed; and, if not too late in the season, the old birds will at once begin laying again. However, I seldom had good success with the second brood. The young never seemed so strong, nor did they grow so fast as the first.

I always let the hen do her own setting, but know of several persons who placed the eggs under domestic fowls.

C. T. METZGER.

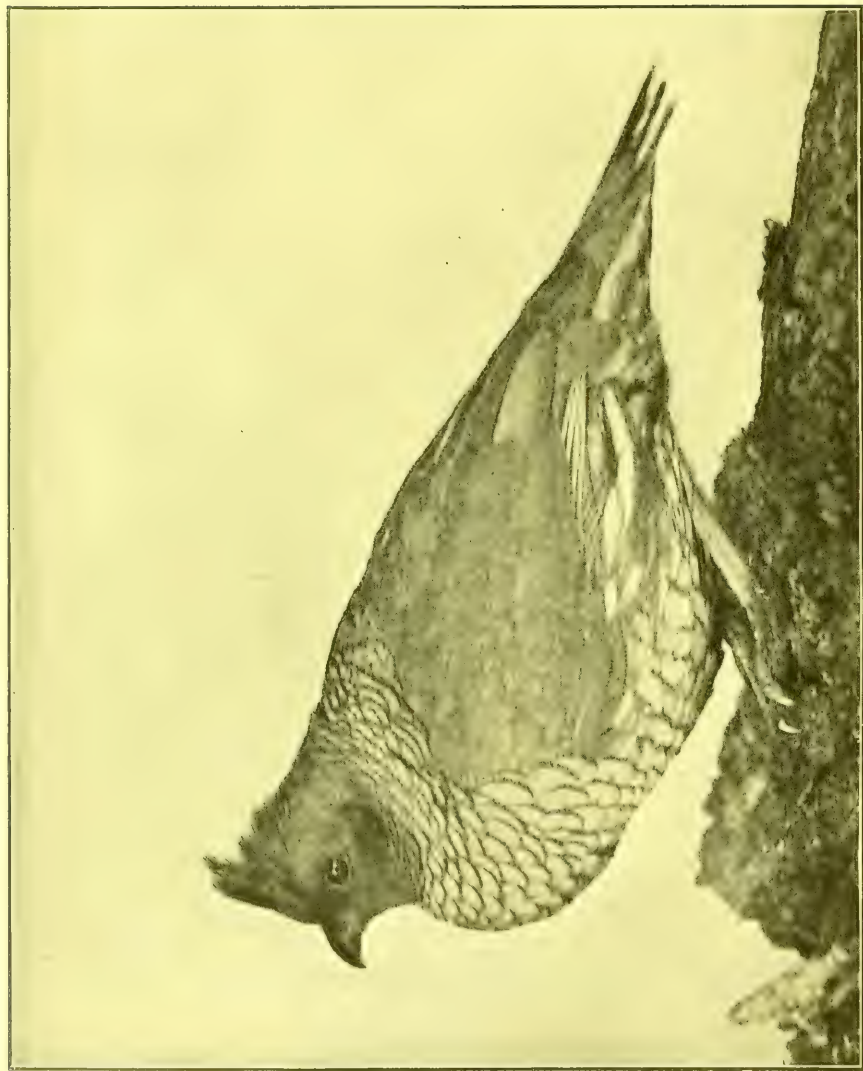
(Note.—Mr. Metzgers present address is unknown.—Ed.)



Natural History Notes.

RECREATION, N. Y. City. (\$1.00 per year.)

I feed my quails cracked corn, whole wheat, buckwheat, hemp seed, barley and maggots. Give each kind of feed separately and only once a day. Give that at noon. Also plenty



(52a)

Chestnut-bellied Scaled Partridge.

Photo from life by
Dr. R. W. Shufeldt.

of fresh water. Be sure the quails have grit; get mica crystal grit, pigeon size. In the breeding season feed in the morning a mash consisting of 1 teacup of bran, 1 teacup of corn meal, 1-2 teacup of beef scraps, 1 teaspoonful of Egg-O; mix with hot water and feed hot. This is enough for 20 quails. Do not make the mash lippy. Wet it just enough to make it stick together. Give finely cut oyster shells.

If these directions are followed quails ought to lay lots of eggs and hatch strong young birds. We raise hundreds every year of each variety.

Egg-O is the best thing known to feed any and all wild birds.

I have fed it for 6 years and can raise 85 per cent. Will answer any questions on care of wild game birds.

C. L. Darlington, Stoneham, Mass.



A Successful Fancier.

Hope McIntyre of Sioux City, Iowa, writes us a very interesting letter with reference to his success in raising quail in confinement.

In part he says: I purchased a live female quail from a boy who had trapped it in the fall of 1898. I immediately cut one wing and put it in the window of the Niagara restaurant, in which I am interested. I left it uncaged and no screen. For the first week had all kinds of trouble in keeping the bird in its new quarters, but with persistent work and gentle treatment the little one at last showed signs of contentment. Two weeks later another female was secured by the same boy and came into my possession. I found no such trouble with it as with the first bird, both growing more like pets than wild birds eating berries and green stuff such as lettuce, etc. from my hand.

In the spring of 1899 Conductor Butler of the Sioux City &

Northern road, who was a great admirer of the birds, brought a male from up in the country. The three were kept as an attraction in the window of the restaurant, where thousands of people looked at them and wondered at their domestic nature.

As spring advanced I noticed the male picking up pieces of straw, dead grass etc. Suspecting they were going to nest, I removed them to a coop on the ground, against the side of the barn. The coop is sixteen feet long, eight feet wide and eight feet high, rat proof. The south and front of coop is half inch mesh wire. Top and sides both sealed. I water them every day and feed screenings, cracked corn and plenty of green stuff. Threw in the rakings of the yard, an armful of straw and fixed several little hiding places and left them in their glory. Allowed no one to disturb them or in the coop. Had water trough so arranged as to fill it from the door without molesting them.

The result was the last week in June to find thirteen little fellows racing around the coop."

He now has a large flock of very tame birds and has disposed of a great many at good figures.



Success With Several Varieties.

Written especially for QUAILOLOGY.

To write an article on the culture of quail such as I would like to write would fill a book of many pages but I will try and condense my thoughts so that I can give to you my experience on this subject in the limited space allowed me.

I have raised quail from the time when they were two or three days old to grown birds, also from the eggs hatched under the mother quail, under the bantam hen, and in the incubator.

I have been asked a great many times what I found the best, and have answered it thus; it depends a great deal on the per-



(54a)

Pair of Domesticated Bob White

Owned by H. A. Boies. Photographed in the Aviary

son; if you have lots of time to give to the little ones either of the following ways will prove satisfactory. As soon as the mother quail has finished laying, remove the eggs very carefully and put them under a small bantam hen, I think the cochin breed to be the best if you can get one not too large, as they will cover the eggs much better than other varieties, but what ever kind you use be sure that it is free from vermine.

If you can run an incubator try hatching the eggs in thls, you will find it very interesting. After the eggs have hatched and the little ones have been with the mother about twenty-four hours, remove them to a small brooder, by this time they will have learned to eat and you will find them very interesting little pets. Quails that have been raised in a brooder are as tame as little chicks, and you can handle them at will for they have no mother to frighten them, while those raised by the bantam hen are more timid, and will not as a general thing let you touch them. Only as the last resort let the mother quail raise her own young, for unless she is a very tame bird you will not see very much of her little ones, and even then they will be taught to fear you.

I keep my young quail indoors the first week, then I remove the brooder out-doors into a pen made as follows: Make a frame out of some light stuff, four foot long, two foot wide and one and a half foot high, use a four inch board around the bottom, then fasten fine wire netting on one side and both ends; make the top separate and after covering it with wire netting, fasten with hinges. On the side left open build the shelter; make it four foot long, two foot deep, with a front one and one half foot high and a back one foot high. Under this shelter place your brooder; for the first two or three nights you will have to put the little fellows in, but they will soon learn to go in themselves whenever they get cold. Leave them in this pen until they are one third grown, then put them in the larger aviaries where they are to be kept.

My large aviaries are sixteen feet long, ten feet wide, and six feet high, with a one foot board around the bottom, and are covered with one inch mesh wire netting; on the south side I build a tight water-proof shed, I make it the full width of the aviary, six foot deep with a front six feet high and a back four feet; the top, back, and two ends are boarded up good and tight, while the front or south side is left open; be sure and have the ground higher under the shelter, so the water will not run in. I keep hay on the ground for them to roost on also a few evergreen boughs for them to hide in. In the winter I put some evergreen boughs over the front of the coop to help keep the snow out. For entering the aviary and coop, I have a door on either side next to the coop. These aviaries will accomodate from fifteen to twenty pair of old birds.

The quail will build her own nest, but it is best to fix a place for them to build it in, which can be easily done by fastening a board about one foot square one foot from one side in the back of the coop, over this little pen place some evergreen boughs, so as to hide it; the quail will soon find this and will probably build their nests there.

If you want your pets to do well they must have good wholesome food and the best of care. I feed my young quail for the first week on a mash made as follows:—Take equal parts of corn meal and middlings, to which a little brand and the raw yolk of one or two eggs is added; feed every two or three hours and only what they will eat up clean, as they become older I do not feed so often, it is better to keep them a little hungry than to overfeed; after the first week add to the above a little ground beef and some green stuff such as lettuce or celery tops, boiled potatoes are also very good, in addition to the above throw a handful of millet seed into the pen every day; after the second week add an even portion of clover meal; I feed this mash until they are a third or half grown then I feed the mash in the morning and grain in the evening; I think

a mixture of wheat, and buckwheat to which a very little cracked corn is added is the best; in the winter have the mash hot and add more corn to the grain mixture; outside of their regular meals feed green grass or clover cut in proper lengths, and a small quantity of fresh lean meat cooked and cut into suitable pieces; always keep a supply of grit and fresh clean water within easy reach, and see that the drinking vessels are kept clean.

I have also raised the Mexican and California varieties and cannot see but that one variety is as easy to raise as another.

The quail fancy, practically speaking, is new though they have been kept as pets as far back as the year 1794, but as a fancy it has only started in the last year and whether it is to live or die depends upon the way it is supported by our brother fanciers. Some, to be sure will make a failure of it while others will make a grand success, but we must all take hold and do the best we can and let our followers profit by the mistakes we have made, and we will soon have the raising of quail, whether for pleasure or profit, one of the leading fancies.

The quail as we all know are rapidly disappearing and it will not be very long before they will be a bird of the past; they will be hunted until the last one is gone. There remains but one way to save this noble bird, and that is through the fancy, so brothers let's put all of our efforts towards saving the noblest of all our game birds, the "QUAIL."

H. A. BOIES, Detroit, Mich.



Quails In Domestication.--Extracts.

RECREATION, N. Y. City. (\$1.00 per year.)

Several years ago I procured 2 pair of quails from a friend in Oklahoma. I placed them in an open cage, 5x12 feet, in the garden, exposed to all kinds of weather. This was close to the chicken yard, a fact which I afterwards regretted, as quail are

dainty in their habits, and if given ample opportunity for dust baths, keep free from vermin. ... When 15 eggs had been laid, they prepared to set, when the male escaped. ... The plucky little hen assumed all responsibility and proceeded to hatch the eggs, which she did in 25 days, hatching the entire 15 birds. ...

Last year I again had 2 hens and one cock, and they mated as before, declining polygamy most emphatically. ... During the season they laid 54 eggs, but did not set at all,...so I placed a number of fertile eggs in the...incubator and hatched several of them, placing them in a brooder. ... At that particular time I was away from home, and as they were entirely without attendance, it was not surprising that on my return all but one were dead. How that one survived I do not know,... When only 6 weeks old and before he was fully fledged, I had another small hatching from the incubator, and I placed them with him. At first he seemed to consider them grasshoppers, and treated them as such, but in a day or 2 not only tolerated them but, to my surprise, actually brooded them....

Wild mustard,...they eat greedily, leaving grain untouched if they can get the seeds of this weed.

...Anyone who will adopt the quail as a protege, as I have done, will find himself well repaid for the trouble. They are not only more affectionate than our common poultry, but vastly more interesting. ... Quail are much like turkeys when young, a very little will kill them, especially cold or wet; but with a dry and moderately warm place they are sure to thrive.

J. T. Blandford, Buffalo, N. Y.





(58a)

European Quail.
Female.

Photo from life by
Dr. R. W. Shufeldt.

QUAILOLOGY.

Part IV.

A DIGEST OF GAME LAWS.

We have endeavored to make this section as concise as possible to convey the desired information. From the U. S. Agricultural Department, Bulletin 16-1901, we take the following:

Game For Propagation.

“The subject of transportation of game for breeding purposes is one that has received too little attention at the hands of law makers. In some States the prohibition against export is so broad as to include not only dead game, but also live animals and birds intended for propagation. . . . Maine has recently inaugurated a departure in requiring every person who imports game to first secure a permit from the commissioner of inland fisheries and game, under penalty of a fine of \$50 to \$500. Delaware, Nevada, North Carolina, and Tennessee have stringent laws prohibiting the export of quail, dead or alive, out of the State. . . . Canadian laws are less restrictive. The Dominion places no restriction on the exportation of live game, and several of the Provinces authorize the proper authorities to issue licenses for shipments of game intended for breeding purposes. A few States have adopted this principle, and some others make exceptions in nonexport laws, or permit possession at any time of game intended for propagation.”

From Biological Survey Circular No. 29. “The Department issues no permits for shipping birds from one State to another.

In some States, as in California, the Board of Fish and Game Commissioners is authorized to issue permits for shipping birds for propagating purposes, and a few States, such as Michigan and New Jersey, make exceptions in their game laws in the case of birds captured for breeding purposes; but when a State forbids the exportation of birds without exception, interstate commerce in birds from that State is in violation of the Lacey Act, whether the birds are captured during the open season or whether they are intended for propagation or not."

T. S. Palmer's Decision.

In response to an inquiry made of Mr. T. S. Palmer, Ass't In Charge Game Preservation. Biological Survey, Washington, D. C., we quote his reply.

"1. In general the law does not permit the sale of quail out of season, whether raised in captivity or not unless, as in the case of some State laws, there is a special proviso to this effect.

2. The law prohibits the shipment of such quail unless there is special provision for the shipment of birds for propagation.

3. Quail cannot be lawfully trapped or netted for purposes of propagation if the law does not provide for their capture for such purposes.

4. In the absence of a specific provision for propagation the general law relating to possession or capture of game applies to quail in captivity as well as to wild birds."

From the preceeding paragraphs it will be plainly seen that those in charge of game preservation are heartily in accord with the fanciers in making provisions for the propagation, if not domestication, of our game animals and birds. However, it rests with the fanciers in their own State to urge regulations in the exceptions to laws in the case of game birds for propagating purposes. While it is true in a sense that the quail after being domesticated become individual property, never-the-less a number are violating the letter of the law, yet not the intent thereof, as the law makes game birds the property of the State,

unless special provisions are made for propagation and breeding purposes.

The following table shows the Close Seasons for Quail and Partridges in the United States and Canada, taken from the 1902 law and revisions, with notation of exceptions in case of birds for propagation, etc.

Close Seasons, Exceptions to General Law, 1902.

*	STATE	QUAIL—PARTRIDGE	REMARKS
	NORTHERN		
X	Maine.....	Dec. 1-Oct. 1	* For explanation of Marks, Figures and Letters see following page. —
14	New Hampshire.....	Dec. 15-Sept. 15	
X	Vermont.....	Jan. 1-Sept. 1	
	Massachusetts.....	Dec. 1-Oct. 1 (1)	
	Rhode Island.....	Dec. 16-Oct. 15	
	Connecticut.....	Dec. 1-Oct. 1	
X	New York (1).....	Dec. 16-Nov. 1	
	Long Island.....	Jan. 1-Nov. 1	
†-F	New Jersey.....	Jan. 1-Nov. 10	
†	Pennsylvania.....	Dec. 16-Oct. 15	
	Delaware.....	Jan. 1-Nov. 15	
†	Maryland (1).....	Dec. 25-Nov. 1	
5	Dist. Columbia.....	Mar. 15-Nov. 1	
	Virginia (1).....	Jan. 1-Oct. 15	
	West Virginia.....	Dec. 20-Nov. 1	
	Kentucky.....	Jan. 1-Nov. 15	
B	Ohio.....	Dec. 2-Nov. 10	
X-E	Michigan.....	Dec. 1-Oct. 20(19)	
	Indiana.....	Jan. 1-Nov. 10	
D	Illinois.....	Dec. 20-Nov. 1 (7)	
A	Wisconsin.....	To Sept. 1903	
	Minnesota.....	Dec. 1-Oct. 1	
	Iowa.....	Jan. 1-Nov. 1	
X	Missouri.....	Jan. 1-Nov. 1	
	Kansas.....	Jan. 1-Dec. 1	
	Nebraska.....	To Nov. 1, 1903	
	South Dakota.....	Jan. 1-Sept. 1	
X	North Dakota.....	To Sept. 1, 1905	
	Montana.....	At all times	
X-A	Wyoming.....	
C	Colorado.....	At all times	
	SOUTHERN		
	North Carolina (1) ..	Mar. 15-Nov. 1	
	South Carolina.....	Apr. 1-Nov. 1	
	Georgia.....	Mar. 15-Nov. 1	
6	Florida.....	Mar. 1-Nov. 1	
†	Alabama (1).....	Mar. 2-Nov. 15	
	Mississippi.....	May 1-Oct. 1	
H	Tennessee (1).....	Mar. 1-Nov. 1	

Close Seasons, Exceptions to General Law, 1902.

(Continued.)

*	STATE	QUAIL - PARTRIDGE	REMARKS
27	Arkansas.....	Mar. 1--Oct. 1	* For explanation of Marks, Figures and Letters see notes following below. —
G	Louisiana.....	Apr. 1--Nov. 1	
†	Texas.....	Mar. 15--Oct. 1	
A	Oklahoma.....	Feb. 1--Oct. 15	
	New Mexico.....	Mar. 1--Oct. 1	
	Arizona.....	Mar. 1--Oct. 15	
	PACIFIC		
B	California.....	Feb. 1--Oct. 1	
B	Nevada.....	Mar. 16--Sept. 1 (2)	
28	Utah.....	At all times (1)	
	Idaho.....	Dec. 1--Nov. 1	
	Washington.....	To 1903	
	Oregon (1).....	Dec. 1--Oct. 1	
B	Hawaii.....	Mar. 1--Sept. 16	
	CANADA		
X	British Columbia....	At all times	
	Manitoba.....	Jan. 1- Aug. 1	
	Ontario.....	Dec. 1--Nov. 1	

(*) Prohibited Methods—Traps, Nets, etc. † Killing by other means than shooting with a gun. 5 Birds; possession of traps, nets or snares also prohibited. 6 Quail, except on ones own premises. 14 Quail 27 Taking quail or partridges with nets. 28 Partridge during close season; quail at all times. X Indicates simple prohibitions,

(*) Exceptions to law in case of birds for propagation, A Possession for propagation permitted during close season. B Exception in case of game birds for propagation; permit required from State Commissioners. C Importation allowed on permit from Commissioners; parks may exchange with individuals within or without the State. D Lawful to export game birds captured within the State, under license from State. E State Game Warden authorized to issue permit to capture any game birds for propagation if not for sale. F Importation only, for propagation. G Exception in case of fine birds captured for domestic or scientific purposes, provided that not more than one pair may be shipped at one time. H Exceptions in certain counties.

Figures after State or date. (1) Indicates County exceptions in which special protective legislation exists and close season varies from that of the general State law. (2) Certain species. (7) Sale. (19) Under the old law which will stand.





California Partridge.

Photo from life by
Dr. R. W. Shufeldt.

Quail Toast.

(WOODS & WATERS, Boston, Quarterly, 35c a year.)

“Bob-bob-white!”

O'er the meadow comes the greeting,
Clear and sweet, with echo fleeting
Back along the woodland's shadow,
Faint returning o'er the meadow—

“Bob-bob-white!”

“Bob-bob-white!”

Up the lark springs from the heather,
Thrilling praise of balmy weather;
But the daisies blink and glisten
As they bow their heads and listen—

“Bob-bob-white!”

“Bob-bob-white!”

At the banquet of the morning
With its crystal drops adorning,
Like a dream of music floating
Rings the toast in silv'ry noting—

“Bob-bob-white!”

“Bob-bob-white!”

O'er the meadow comes the greeting,
Clear and sweet, the echoes fleeting
Back along the woodland's shadow,
Faint returning o'er the meadow—

“Bob-bob-white!”

CHARLES SLOAN REID.

Taxiderm = Taxidermy.

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TRULY THE POSSESSOR of The Art of Taxidermy hath been endowed with a touch from the God of All Nature. As he carefully removes the coat that covered the once graceful form of bird or beast and prepares for it a new body, we but wonder at the patience and skill he has attained. Yet see him now, as he shapes the specimen into a beautiful form that would invite envy from the bird or beast himself were he there to view his likeness. How cunning the workman, what pleasure he takes from his efforts to reproduce Nature in his den for himself and others admiration. Truly it is Art, stolen from Nature, yet why can not we too partake of the lessons and master the Art?

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Taxiderm = A Quail.

The following Instructions are given for Preserving and Mounting a Quail by the TAXIDERM METHOD.

PRESERVING:—Lay the quail on a piece of paper, on its back; carefully part the feathers and cut through the walls of the abdomen from the lower end of the breast bone to the vent. Remove intestines, liver, etc, through this opening being careful not to soil the plumage. Wipe away the blood and profuse matter with a piece of cotton and powder the cavity with TAXIDERM, well up into the lung cavity. Loosen the skin from the breast and insert a small quantity of TAXIDERM; also insert a thin layer of saw-dust to allow for slight shrinking of the flesh, and to give the specimen a plump appearance. Treat the legs in the same manner, skinning them out through the body cavity, making several incisions in the flesh and powdering them well. Fill the abdominal cavity with saw-dust, cotton or tow, tow preferred, and sew up the skin, beginning at the breast bone and sewing down, after which, carefully lay the feathers over the incision. Make an incision along the underside of the wings and thoroughly powder the fleshy part. Next remove the eyes from their sockets, wiping away all watery matter and powder the cavities well, filling them temporarily with cotton. Open the mouth and with a scalpel make an incision well back in the roof into the brain cavity and force a quantity of TAXIDERM into the opening. Clean the throat with a small swab and powder it well, filling it up with saw dust or tow. Fasten the mandibles together with a thread to hold them in position until dry. Your specimen is now ready for mounting.

MOUNTING—Take a wire about two inches longer than the bird from toes to point of bill, sharpen it with your file and run it up the back of the leg inside the skin, through the body cavity, neck and out through the skull, allowing it to protrude about an inch to aid in handling. Take another wire about two-thirds as long as the first and after sharpening the point pass it up the back of the other leg inside of the skin, through the body cavity, and out through the back. Hook it over and draw it back into the body to form a firm support, carefully concealing it by replacing the feathers over it. Straighten the legs and run the protruding wires through holes in a perch or base and fasten them securely. Now bend the bird into its natural or desired position. It is well to be a careful observer of bird life that you may be able to give to your mounted specimens life-like attitudes. Remove the cotton from the eye cavities, powder well and fill with putty, inserting No 8 hazel glasseyes drawing the eyelids down over the edges of the eye. Secure the wings in position with pins. Elevate the tail by a pin run into the body below the tail. Hat or belt pins are very good for these purposes. Wind the plumage down in place with cops or cotton strips and set the quail away to dry after which they can be removed and the wings and feathers will hold their place.



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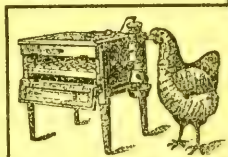
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